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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,596	02/19/2004	Chen W. Liaw	AREN11.US12.CON	5835

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EXAMINER	
LI, RUIXIANG	
ART UNIT	PAPER NUMBER
1646	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/21/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/782,596	LIAW ET AL.	
	Examiner	Art Unit	
	Ruixiang Li	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-8,21-26 and 28-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-8,21-26 and 28-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 September 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/20/2005 & 9/27/2006*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application, Amendments, and/or Claims

The amendment filed on 09/27/2006 has been entered in full. Claims 28-30 have been added. Claims 5-8, 21-26 and 28-30 are pending and under consideration.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Withdrawn Objections and/or Rejections

The objection to claims 7 and 8 for minor informalities has been withdrawn in view of amended claims.

Information Disclosure Statement

The Information Disclosure Statements submitted on 12/20/2005 and 09/27/2006 have been considered. An initialed copy is attached to this office action.

Drawings

The drawings, Fig. 2A, 2B, filed on 02/19/2004 are accepted, but the drawings, Fig. 3 and 5, filed on 02/19/2004 are objected to because they are still too dark to be seen. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement

drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Request for Corrected Priority

Applicants' request to correct the priority listed for this application is noted. The priority information will be updated.

Claim Rejections Under 35 U.S.C.§101, 35 U.S.C. §112, 1st Paragraph (Enablement)

The rejections of claims 5-8 and 21-26 under 35 U.S.C. § 101 and 35 U.S.C. §112, 1st paragraph are maintained for the reasons set forth on the record. New claims 28-30 are also rejected on the same basis. Claims 5-8, 21-26, and 28-30 are rejected under 35

U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well-established utility.

Beginning at the bottom of page 8 of Applicants' response filed on 09/27/2006, Applicants argue that those of skill in the art would readily recognize the utility of using the GPCR, hARE-2, in the treatment or identification of compounds for treatment of motor impairment disorders associated with the substantia nigra, such as Parkinson's disease, which is a specific, substantial, and credible utility.

Applicants' argument has been fully considered, but is not deemed to be persuasive for the following reasons. First, the specification does not assert that an agonist, antagonist, or partial agonist can be used to treat a motor impairment disorder associated with the substantia nigra, Parkinson's disease. Secondly, the prior art search does not reveal that the hARE-2 is linked to Parkinson's disease. The mere disclosure of the expression of the hARE-2 polypeptide in the left and right cerebellum and in the substantia nigra (Table 27, page 27) is not sufficient to establish a causative link between the hARE-2 polypeptide and a motor impairment disorder, such as Parkinson's disease.

Applicants argue that several noteworthy celebrities have Parkinson's diseases and have been outspoken in their search for a cure. While this is true, it does not provide

any evidence showing a causative link between the hARE-2 polypeptide and Parkinson's disease.

Applicants also argue that the utility is substantial because the use of hARE-2 in an assay to identify possible ligands for treating a disease or disorder of the substantia nigra such as Parkinson's disease is a "real world" use. This is not persuasive. As noted above, since the hARE-2 polypeptide does not have a specific and substantial utility, a possible ligand identified by a method of employing the polypeptide does not have a specific and substantial utility. Moreover, the methods of the present invention do not identify a ligand because a ligand is required to bind the hARE-2 polypeptide, whereas the methods do not set forth such a step.

Applicants argue that the utility is credible. It is noted that since the utility is not specific and substantial, whether the utility is credible or not has not been assessed.

Beginning at the bottom of page 11 of Applicants' response, Applicants criticizes previous office action and argue that one of skill in the art would readily recognize that hARE-2 is a GPCR as indicated by Applicants. This is not persuasive because the sequence homology to GPR27 does not endow the hARE-2 polypeptide and the claimed invention with a specific and substantial utility due to the great diversity in structures and functions of the GPCR family, as noted in the previous office action.

Beginning at the 4th paragraph of page 13 of Applicants' response, Applicants argue that the disclosure of a ligand is not a prerequisite to a finding of utility and knowledge of a GPCR's natural ligand is simply not necessary for establishing the function for such a receptor. The Examiner agrees. However, the specification not only fails to disclose the ligand of the putative GPCR, but also fails to provide any sufficient information or evidence on the biological functions or activities of the hARE-2 polypeptide of SEQ ID NO: 20 and fails to disclose a patentable utility for the claimed invention.

Beginning at the 2nd paragraph of page 14 of Applicants' response, Applicants argue that those of skill in the art would have immediately appreciated that the claimed invention directed to the receptor hARE-2 could have been used, for example, in an assay to identify a ligand that would have been useful to treat a disease or disorder of the substantia nigra such as Parkinson's disease.

Applicants' argument has been fully considered, but is not deemed to be persuasive because the prior art search does not reveal that the hARE-2 has a causative link to a disease or disorder of the substantia nigra such as Parkinson's disease. There is no sufficient evidence showing that an agonist, antagonist, or partial agonist can be used to treat a motor impairment disorder associated with the substantia nigra, Parkinson's disease.

Beginning at page 16 of Applicants' response, citing a number of references, Applicants argue a ligand to a polypeptide selectively expressed in substantia nigra could be used in methods of radiolabeling to detect Parkinson's disease. This is not found to be persuasive because the instant disclosure fails to disclose the ligand to hARE-2 and the instant invention is drawn to a method of identifying an agonist, partial agonist, or inverse agonist of hARE-2, not a diagnostic method using the ligand.

At the 4th paragraph of page 16 of Applicants' response, Applicants argue that Agonists, partial agonists, and inverse agonists of hARE-2 are ligands of hARE-2 and such, would be expected to be useful in methods of radiolabeling for detecting Parkinson's disease. This is not found to be persuasive because the methods of the present invention do not identify a ligand because a ligand is required to bind the hARE-2 polypeptide, whereas the methods do not set forth such a step. Moreover, since no single ligand is disclosed in the instant application, such a utility is not specific and substantial because further research would be needed to identify such a ligand.

Claim Rejections under 35 USC § 112, 1st paragraph, Written Description

(i). The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

(ii). Claims 28-30 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof.

Claims 28-30 are drawn to a method for identifying one or more candidate compounds as an agonist, partial agonist, or inverse agonist of a G protein-coupled receptor comprising the polypeptide of SEQ ID NO: 20 or an endogenous version thereof which is encoded by a polynucleotide that hybridizes under stringent conditions to the complement of SEQ ID NO: 19, wherein said stringent conditions comprises a wash at 65 ^{0}C in 0.1xSSC. The claims do not require that the polypeptide possess any particular biological activity, nor any particular conserved structure, nor other disclosed distinguishing feature.

The instant disclosure of an isolated polypeptide of SEQ ID NO: 20 and its encoding nucleic acid molecule set forth in SEQ ID NO: 19 does not adequately support the scope of the genus recited in the claims, which encompasses a substantial variety of

variants of the polypeptide of SEQ ID NO: 20. A description of a genus of cDNA may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus, or of a recitation of structural features common to the genus, which features constitute a substantial portion of the genus. *Regents of the University of California v. Eli Lilly & Co.*, 119 F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). While disclosing the amino acid sequence of SEQ ID NO: 20, the instant disclosure fails to provide sufficient description information, such as definitive structural or functional features of the genus of polypeptides recited in the claims. There is no description of the conserved regions that are critical to the structure and function of the genus claimed. There is no description of the sites at which variability may be tolerated and there is no information regarding the relation of structure to function. Furthermore, the instant disclosure fails to describe the features of the endogenous version of the polypeptide of SEQ ID NO: 20. Finally, the prior art does not provide compensatory structural or correlative teachings to enable one skilled in the art to identify the encompassed polypeptides as being identical to those instantly recited.

Due to the breadth of the claimed genus and lack of the definitive structural or functional features of the recited genus and failure to describe the feature of endogenous version of the polypeptide of SEQ ID NO: 20, one skilled in the art would not recognize from the disclosure that the applicant was in possession of the recited genus and thus the instantly claimed methods.

Claim Rejections under 35 USC § 112, 2nd paragraph

The rejection of claims 5-8 and 21-26 under 35 U.S.C. 112, second paragraph is maintained. New claims 28—30 are also rejected for the following reasons:

(i). The amended claims recite "(b) measure the ability of the compound that inhibit or stimulate said receptor". It is unclear what activity of said receptor is intended to be measured, rendering the claims indefinite.

(ii). The steps of the methods do not necessarily achieve the goal set forth in the claim preamble. The amended claims now recite "(c) identifying the compound or compounds that ***inhibit or stimulate*** said receptor as ***an agonist, partial agonist, or inverse agonist of said receptor***". However, it is unclear how an agonist, partial agonist, or inverse agonist of said receptor is determined and correlated to the preamble.

(iii). Claims 28-30 recite "an endogenous version". Since neither the specification nor the prior art defines the term unambiguously, the claims are indefinite.

(iv). Claims 28-30 are indefinite because they recite "stringent conditions", however, only the washing conditions are given, leaving the hybridization conditions undefined.

Claim Objection under Minor Informality

Claims 5, 7, 21, 24, and 28 are objected to because "and " should be used after section (b), instead of after section "c". Appropriate correction is required.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruixiang Li whose telephone number is (571) 272-0875. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Nickol, can be reached on (571) 272-0835. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [Brenda.Brumback@uspto.gov]. All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Ruixiang Li

Ruixiang Li, Ph.D.
Primary Examiner
December 19, 2006

RUIXIANG LI, PH.D.
PRIMARY EXAMINER